NAME

Module 2 Writing and Simplifying Algebraic Expressions
Lesson 3 Identifying Algebraic Properties

additional practice

Name the property each statement illustrates.

1. $(4x + 4) = 4(x + 4)$

   Distributive Property of Multiplication over Addition

2. $3.8 + 0 = 3.8$

   Additive Identity Property

3. $7x + 5y = 5y + 7x$

   Commutative Property of Addition

4. $\frac{1}{r} \cdot r = 1$

   Multiplicative Inverse Property

5. $(a + b)(b + c) = (b + c)(a + b)$

   Commutative Property of Multiplication

6. $44n + (36n + 23n) = (44n + 36n) + 23n$

   Associative Property of Addition

7. $5 \cdot 1 = 5$

   Multiplicative Identity Property

8. $(3 \cdot 8)0 = 3(8 \cdot 0)$

   Associative Property of Multiplication

9. $0 = 2g + (-2g)$

   Additive Inverse Property

10. $-\frac{1}{2} + 4 = 4 + \left(-\frac{1}{2}\right)$

    Commutative Property of Addition

11. $49 + 56y = 7(7 + 8y)$

    Distributive Property of Multiplication over Addition

12. $75y^2 - 250d^4 + 600 = 25(3y^2 - 10d^4 + 24)$

    Distributive Property of Multiplication over Addition

Write the opposite and reciprocal of each expression.

13. -7 — Opposite: 7 Reciprocal: $-\frac{1}{7}$

14. $\frac{2}{3}$ — Opposite: $-\frac{2}{3}$ Reciprocal: $\frac{3}{2}$

15. $3c$ — Opposite: $-3c$ Reciprocal: $\frac{1}{3c}$

16. $\frac{2}{a}$ — Opposite: $-\frac{2}{a}$ Reciprocal: $\frac{a}{2}$

17. $-\frac{2t}{5}$ — Opposite: $\frac{2t}{5}$ Reciprocal: $-\frac{5}{2t}$

18. 0 — Opposite: no opposite Reciprocal: no reciprocal

Use the properties we have learned to simplify each expression. Name the property and show your work.

19. $(83 \cdot 5) \cdot 2$

    Associative: rewrite as $83 \cdot (5 \cdot 2)$, then $83 \cdot 10 = 830$

20. $18 + 37n + 22$

    Commutative: rewrite as $18 + 22 + 37n$, then $40 + 37n$